

WP 2D (2014 – 2016)

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Research Aim and Deliverables

With open design, user-designers make the source files of their design digitally available for the public to use and study. Yet the practical and the theoretical implications of these vast arrays of design resources, available as part of the digital commons, are less understood. The project seeks to examine the socio-economic implications of these digital commons.

Project deliverables:

- 1 x conference; 1 x workshop; 1 x journal article; a wiki page re open design

Research Setting and Progress

- The project examines open design and business appropriation of an online 3d design platform, thingiverse
- Preliminary analysis examined business appropriation of open design by Makerbot, and the findings were presented at the Open and User Innovation Workshop (Harvard Business School, Boston) July 2014; and the Academy of Management Conference (Philadelphia) August 2014.

The first preliminary study

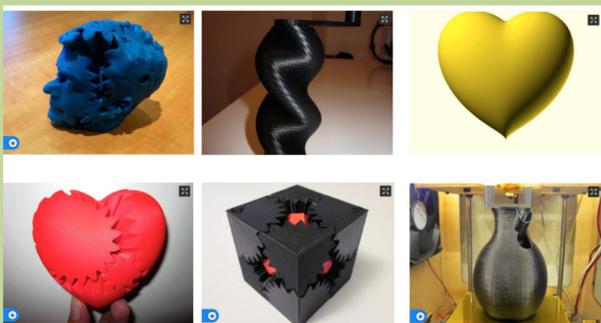
- Co-author: Joel West, KGI, The Claremont Colleges
- Title: Proprietary Benefits from Open Communities: How MakerBot Leveraged Thingiverse in 3D Printing
- Forthcoming (conditional accept): Technological forecasting and social change

Abstract

Our understanding of open source models of innovation is primarily based on research on open source software. This research focuses on the underlying challenges in developing a user-based community as a complementary asset, and at the same time strengthening appropriability regimes without losing control over the technologies that are fundamental to their business success. Yet less is known about new start-ups driven by open hardware. Here we study 3D printing, and how MakerBot Industries leveraged open hardware and content to become a multimillion dollar firm based on selling closed source hardware, while nurturing its open online content community. Using a longitudinal case study design, we identify three distinct phases in how MakerBot created and nurtured the Thingiverse community as a free resource of user-created digital designs that could be printed as physical goods through its physical printers, both creating value for the community and demand for its products. We analyze MakerBot's ability to win community acceptance for its increasingly proprietary strategy, and offer broader implications for managing user communities, open hardware design and partly open platform strategies.

Future empirical studies include:

- Portfolio analysis of design resources and digital commons



- The impact on open design as Makerbot/thingiverse becomes increasingly closed and market-driven

Challenges and Policy Implications

- Bits are free, atoms cost money. Is this fair?
- Is open source hardware a viable business model?
- Can copyleft protect open source hardware?
- How to resolve the tensions between private and collective interests in open design and hardware?